

What Is Claimed Is:

1. An information input apparatus whose key arrangement is variable, comprising:

5 a key display section for displaying elements of a key image of a matrix shape;

 a key input section for receiving information of a corresponding key at a predetermined location of the key image displayed on the key display section; and

10 an input controller for generating an image of predetermined key arrangement selected among a plurality of key images in which numeric keys are shift-arranged so that there is no crossing in an neighboring numeral traffic line, providing the generated image to the key display section, and converting the information inputted through the key input section into an actual key value based on the predetermined key arrangement.

20 2. The information input apparatus as claimed in claim 1, further comprising an ambient light shielding filter attached to the front of the key display section.

25 3. The information input apparatus as claimed in claim 2, wherein the ambient light shielding filter is an orthogonal two-fold shielding filter.

4. The information input apparatus as claimed in
claim 1, wherein the input controller further comprises
a user input section, and displays the key image of the
5 predetermined arrangement type on the key display
section based on the signal inputted through the user
input section.

5. The information input apparatus as claimed in
10 claim 1, wherein the matrix elements are shifted in a
direction moving from a left upper portion of the
keypad to a right lower portion of the keypad.

6. The information input apparatus as claimed in
15 claim 1, wherein the key arrangement includes non-
numeric keys whose location is all fixed.

7. The information input apparatus as claimed in
claim 1, wherein the key arrangement includes non-
20 numeric keys that are shift-arranged along with the
numeric keys.

8. The information input apparatus as claimed in
claim 1, wherein the key arrangement comprises a
25 plurality of non-numeric keys having one side fixed to
a predetermined location and the other randomly

arranged.

9. The information input apparatus as claimed in
claim 1, wherein the key arrangement comprises non-
5 numeric keys all of which are randomly arranged.

10. The information input apparatus as claimed in
claim 1, wherein the key arrangement comprises numeric
keys and non-numeric keys, the numeric keys experience
10 a square rotary shift in the clockwise or
counterclockwise direction, and the starting point of
the numeric keys is arbitrarily selected.

11. The information input apparatus as claimed in
15 claim 10, wherein the non-numeric keys are fixed at the
center.

12. The information input apparatus as claimed in
claim 1, wherein multiple character keys are allocated
20 to the numeric keys.

13. A method for controlling an information input
apparatus of variable key arrangement, wherein the
information input apparatus includes a key display
25 section for displaying a key image of a matrix shape
and a key input section for receiving information of a

corresponding key at a predetermined location of the key image displayed on the key display section, comprising the steps of:

- displaying, an image of predetermined key
5 arrangement selected among a plurality of key images in which numeric keys are shift-arranged so that there is no crossing in neighboring numeral traffic line, on the key display section, and then waiting for a user's key input; and
10 decrypting the information inputted through the key input section as an actual key value based on the predetermined key arrangement.

14. The method as claimed in claim 13, further
15 comprising the step of selecting an image of other key arrangement if the user chooses to change the key arrangement.

15. The method as claimed in claim 13, further
20 comprising the step of selecting an image of other key arrangement every key input of a predetermined number of times.

16. A method for controlling an information input
25 apparatus of variable key arrangement, wherein the information input apparatus includes a key display

section for displaying a key image of a matrix shape and a key input section for receiving information of a corresponding key at a predetermined location of the key image displayed on the key display section,
5 comprising the steps of:

displaying a key image of predetermined arrangement on the key display section and then waiting for key input;

if the key input is made, decrypting the
10 information by the key input as an actual key value based on the predetermined key image arrangement;

comparing the decrypted key value with legal user information to determine whether the decrypted key value is a key value of the legal user or the same hand
15 movement key value; and

if the decrypted key value is the key value of the legal user, performing a subsequent process, if the decrypted key value is the same hand movement key value, performing an illegal use process, and if the decrypted
20 key value is neither the key value of the legal user nor the same hand movement key value, waiting for key input again.

17. The method as claimed in claim 16, wherein the
25 legal user information is inputted corresponding to account information inputted by a card or a bankbook,

and the illegal use process includes temporarily stopping the use of the card or bankbook.

18. The method as claimed in claim 16, wherein the
5 illegal use process includes notifying the legal user or an administrator of the information input apparatus of the illegal use fact.

19. The method as claimed in claim 16, wherein the
10 illegal use process is performed only when the same hand movement key input is performed in excess of a predetermined number of times.

20. A private information input system for
15 preventing the drain of information through peeping, comprising:

means for generating a key image;

means for generating a masking image that masks the key image;

20 means for generating an image sequence for the key image and the masking image;

a key display section for displaying the key image and the masking image based the image sequence;

25 a key input section for receiving information of a corresponding key at a predetermined location of the key image displayed on the key display section; and

a private input section control means for converting the information inputted through the key input section into an actual key value according to the key image.

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21. The private information input system as claimed in claim 20, wherein the means for generating the key image generates a key image whose key arrangement varies.

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22. The private information input system as claimed in claim 20, further comprising a shutter opening/shutting means which has a shutter section and a shutter controller for opening/shutting the shutter section according to a shutter opening/shutting sequence corresponding to the image sequence.

23. The private information input system as claimed in claim 22, wherein the shutter opening/shutting means further comprises a sensor for sensing a user's use and informing the private input section control means of the fact.

24. The private information input system as claimed in claim 20, further comprising an ambient light shielding filter attached to the front of the key

display section.

25. The private information input system as claimed in claim 20, further comprising a user 5 authentication section for determining whether the user is a legal user.

26. The private information input system as claimed in claim 20, wherein the key image generating 10 means decides a key arrangement type, and generates a key image of a current time point by randomly selecting one key arrangement having the decided key arrangement type.

15 27. The private information input system as claimed in claim 20, wherein the masking image causes a mixed image generated from the key image and the masking image to be seen to have a specific meaning regardless of the key image from naked eyes.

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28. The private information input system as claimed in claim 27, wherein a key display unit of the key display section is composed of a LED.

25 29. The private information input system as claimed in claim 27, wherein a key display unit of the

key display section is composed of 7-segment LED, and the masking image causes a mixed image generated from the key image and the masking image to be seen as "8" from naked eyes.

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30. The private information input system as claimed in claim 20, wherein the masking image has a shape in which all the numerals except for numerals corresponding to the key image are overlapped.

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31. The private information input system as claimed in claim 20, wherein the key image comprises two or more element images that display a predetermined numeral when being mixed.

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32. The private information input system as claimed in claim 20, further comprising means for generating an intermediate state image between the key image and the masking image; wherein the image sequence generating means generates an image sequence for the intermediate state image, the key image and the masking image; and the key display section displays the intermediate state image, the key image and the masking image according to the image sequence.

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